

2017-Bicentenary of the Cycle

Kiki's Super Duper Explorer

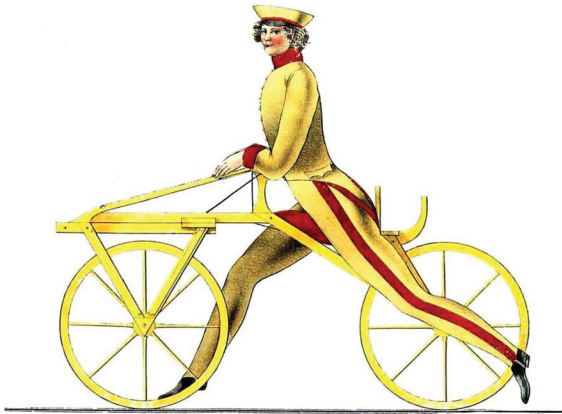
T. Vijayendra



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to
Harshini Viveka Dhara

Acknowledgements

It is difficult to begin without borrowing.

Thoreau

I have been a dedicated cyclist all my life by which I mean I have never driven any fossil fuel powered vehicle. No, not even a two-wheeler Scooter or a Moped. I have used the cycle for nearly 50 years and it has been my friend through thick and thin, through rain and sunshine.

This is my little tribute to the cycle in this bicentenary year of the bicycle.

As usual, in writing a book, an author incurs a lot of debt and gets a lot of support from friends and this is the place to acknowledge.

The story was written while I was staying with Lindsay and Ranjan in their village in Jharkhand. They have remained my friends through nearly 50 years (Ranjan) and 37 years (Lindsay) and I look forward to my annual visit to their place. So, a big 'thank you' to them.

Lavanya, Shamala, Sharada and Sarika inspired me to write this story. They appear as characters in the story!

Hema helped in the production of the book.

The last name is reserved for Karnika who has edited so many of my books with loving care. So, 'Lots of Love' to her.

Happy riding and reading!

Vijayendra

Hyderabad,
July 11, 2017

A Visit to Lavanya

Sarika was thrilled that she and her mother, Sharada, were visiting Lavanya aunty. Lavanya aunty and Sharada used to be classmates and have remained great friends ever since. Lavanya aunty was Sarika's favourite because every time she met her, something exciting happens. She had gone to organic farms with her in Karkala and Chikballapur. Then there is the great cycle, Trek 7.1, that aunty owned and which Sarika loved to ride.

This time, aunty told her, 'I am writing a book on cycle maintenance. We are going to Sadiq's cycle shop to learn how he repairs cycles and document his techniques by taking some photographs. You too can learn some cycle maintenance at the shop. Later, an engineer-scientist friend of mine, Kiki, will join us for lunch.'

They all walked to Sadiq's shop which was half a kilometre away. Upon reaching there, they saw the board,

Bicycle Hospital
Dr. Sadiq



Illustration 1. Sadiq's bicycle repair shop

Sadiq greeted them with a smile. He knew Lavanya and he had great respect for her Trek 7.1, which he loved to handle. His shop was full of all kinds of bicycles and was well equipped.

Lavanya told Sadiq, 'Teach Sarika all the steps of cycle maintenance and I will take photographs.' Sadiq first took Sarika through the routine of dusting, wiping and polishing the cycle. He then showed her the basic oiling spots – hub, axle, pedals and chain. Next, he showed her how to check the brakes. Finally, they came to repair the puncture for which he checked the valve

tube, then took out the tube, filled it with air, immersed it in a water basin to check for air bubbles that indicate the spot of puncture.

While Lavanya aunty was taking pictures, Sadiq raised his hand with 4 fingers pointing outwards and magically, 4 teas arrived. Lavanya aunty knew the routine and had brought biscuits which Sadiq liked. Lavanya aunty wanted to pay Sadiq for his time but Sadiq knew it was for a book and he refused to take any money. Lavanya aunty assured him, 'Your name and photograph will be in the book and I will give you a copy.'

Kiki the Engineer-Scientist

When they returned home, Sarika saw a strange vehicle parked in front of the house. It had a transparent hood from back to front and two wheels were coming out of it at the bottom. The cycle stand was at the centre with its two 'feet' resting on the ground. Upon hearing them talk, a very slim and short girl with short hair came out of the door. She was wearing denims and a t-shirt and could easily be mistaken for a teenage boy. Lavanya introduced her, 'This is Kiki - engineer, physicist, inventor, bicycle mechanic, trained at 'ratchity-chat byk shop' Bangalore and at Portland, Oregon, USA.' Kiki said, 'Oh, quiet now!' Sarika was curious about Kiki's bicycle. Kiki said, 'I have fabricated this bicycle myself and it has all sorts of special features. I call it Super Duper Explorer'.

Kiki opened the hood. It was a recumbent cycle, that is, you lean back, feet forward and the pedals are in front. The handle was a bit broad and had a few dials mounted on it including an FM radio. One dial was a speedometer and the other was a chronometer. On the back carrier, there was a pack of light weight Lithium battery. It could be charged by pedalling the cycle or alternatively by a solar panel mounted on the hood. Kiki took out the solar panel from the side of the hood. It was a thick sheet and was fixed on the hood just like a rain cover. The battery ran the cycle's electronic equipment. The cycle of course had the standard 21-gear system, lights and reflectors.

The bicycle introduction was followed by lunch. After lunch, Lavanya aunty poured some coffee for

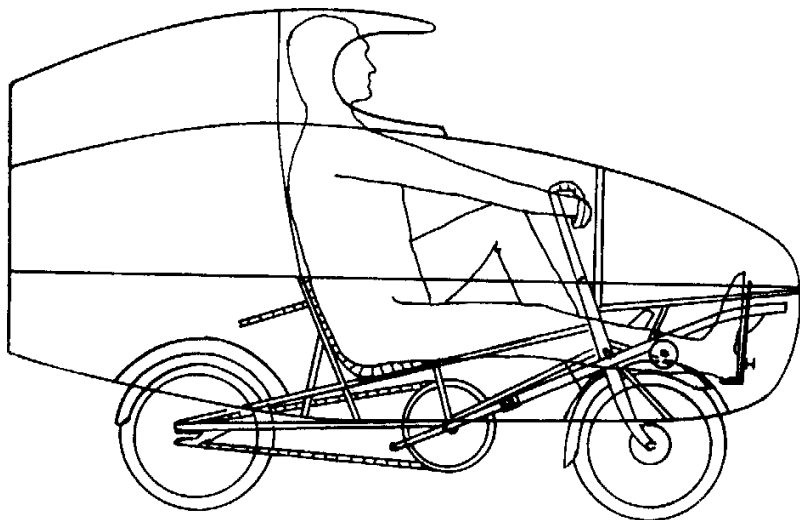


Illustration 2. Kiki's Super Duper Explorer

the three ladies and gave a chocolate to Sarika. Once settled, they began to talk shop. Lavanya aunty asked Kiki about how the cycle was coming along and what was the progress on TTC. Sharada enquired what TTC was. Kiki clarified that TTC meant Time Travel Chronometer and that it was meant to be a secret. She then said to Lavanya, ‘I have installed it last night and programmed it for the 4 major events in the history of the bicycle.’

Sharada: What are they?

Kiki: June 12 of 1817 when Karl Drais’s “Laufmaschine” (running machine) or “Draisine” was launched. This is considered to be the birthday of the bicycle. This happened in Baden, Germany.

(Kiki opened a book and showed some photographs.)



Illustration 3. Karl Drais



Illustration 4. The Draisine

Sharada: What are the other dates?

Kiki: Then we come to France in 1866 when the Cranked Two Wheeled Velocipede was invented. Here, the pedals were added to the front wheel for the first time. The front wheel was high and the back wheel was small. It was also called a penny-farthing bicycle because one wheel was big (penny coin) and the other small (farthing coin). The last major development occurred in England in 1885 – the Rover Safety Bicycle. It almost looked like the present day standard bicycle. (shows photographs.)



Illustration 5. The Penny Farthing



Illustration 6. The Safety Bicycle

Sharada: And what was the fourth event?

Kiki: It was in 1894 in Boston, America when Ann Londonderry, a mother of 3, went on a world tour on her bicycle. She finished it in 15 months.



Illustration 7. Ann Londonderry

Sharada and Lavanya: Wow!

Kiki: (laughing) WOW also stands for Women On Wheels!

Lavanya: Now tell me about the progress of TTC. When are you trying it out?

Kiki: I am still thinking about it and adding some gadgets. You see the problem of time travel is not with the travel bit but with what you are going to do when you reach there!

Sharada: Well, you can do what you like! It will be a live tour of the past unlike the history books. You can have all sorts of adventures.

Kiki: (chuckles) That happens only in children's stories. Unfortunately, in real time travel, you can't do anything. You see, the moment you do anything, change anything, you will be affecting history and the present will change. You don't know the consequences of your act. There is a book called 'Einstein's Dreams' which discusses these problems.

Persons who have been transported back in time are easy to identify. They wear dark, indistinct clothing and walk on their toes, trying not to make a single sound, trying not to bend a single blade of grass. For they fear that any change they make in the past could have drastic consequences for the future. Einstein's Dreams, 1992 by Alan Lightman.

All this was getting too difficult for Sarika and she began to yawn and finally fell asleep on the sofa. No one noticed her.

Sharada: Then what is the point? What will you do after reaching there?

Kiki: That is the problem I am working on. At best, it will be like watching a 3-D movie of the past, because you can't touch anything.

Lavanya: So what is your solution?

Kiki: I am a bit scared. I am going to make Super Duper and its rider invisible during the time they are not in the present. Also, I have programmed the

locations so that they are on a hill or on top of a building and there is no danger of them bumping into any body. Finally there is a pair of binoculars and a book of instructions in the front bag. So you have your 3-D film live!

Lavanya: Well! Well! When are you going to try it out?

Kiki: Not sure, may be tomorrow.

Sarika on the Super Duper

Sarika woke up and was a bit puzzled. She then realised that she was on Lavanya aunty's drawing room sofa. But, where was everybody? She looked in the bedroom and found all the three friends fast asleep. She came out of the house and saw Kiki's cycle. Sarika cautiously went round the cycle on her tippy toes trying not to make a single sound but she could not resist lifting the hood. She got in, closed the hood and sat on the seat. She looked around to find that she can put her feet down on the ground and move forward and the cycle got off its stand. Then all that she had to do was start pedalling and the cycle moved and balanced itself like any other cycle. This pleased Sarika and she went round the block. She saw that the speedometer was reading 15. It was painted green from 0 to 20, yellow from 21 to 40 and red from 41 to 50. The chronometer read 15:30.

Sarika tried to figure out the special things about the cycle. On the chronometer, she saw a button and

pressed it. Quite instantly, the chronometer went blank and so did the speedometer. The date and time appeared and on the FM screen the word, 'Bangalore', appeared. Also, a green light was flashing on the chronometer. She pressed the green button again and suddenly everything outside went dark. The chronometer read TTC and the speedometer read 'c'. Sarika was very frightened. But she was also puzzled by the letter 'c'. In a moment, she figured it out. It meant 'speed of light'!

Germany

It became bright again. The chronometer read June 12, 1817 and on the FM screen, it flashed Mannheim, Baden, Germany. Sarika saw that she was on top of a hill and there was some kind of festival going on down below.

She decided to get out but the hood won't go up. She then saw a message flashing on the screen, 'Open the front bag'. Sarika opened the front bag and found a book, a pair of binoculars and a pair of headphones. The book read, 'You are in Time Travel Mode. You cannot get out. But you can hear and see'. So, Sarika put on the headphones and hung the binoculars around her neck. Suddenly, she began to hear the birds chirp and all sorts of forest sounds. She looked out and found a rabbit going round and round her bicycle. A wolf came, sniffed, and decided to leave his mark on the back wheel. Squirrels ran around everywhere. The forest

was full of flowers and insects were hovering around.

She focussed on the road below and saw a carnival kind of atmosphere. People were lined on either side



*Illustration 8.
Karl Drais on the Draisine*

1817 - The Draisine

Karl Drais's counter-intuitive discovery that a vehicle with two aligned wheels could easily be balanced by tiny actions was the technical breakthrough from which all bicycle development stems. His 1817 'Laufmaschine' (running machine) or 'Draisine' was meant to replace the horses starved after the Tambora eruption that brought the famine in 1816. It was scooted forward with one's feet on the ground and was raced at speeds of 14 miles per hour. Its success in the Western world was curtailed by legal restrictions and by the return of horses after the good harvest of 1817.

of the road, waving colourful flags in the air. In the middle of the road, a man stood near what looked like a strange bicycle. There was the sound of windpipes blowing and the man suddenly jumped on to the cycle, kicked the ground hard and backwards and he was off on his machine. There was a loud cheer. Suddenly, Sarika understood everything. She was witnessing the first bicycle in history. ‘Wow!’ she said to herself.

France

There was a beep. Sarika saw that the screen said ‘One minute remains’ for the next destination and zoom – suddenly everything went dark. But this time, Sarika was prepared and she waited.

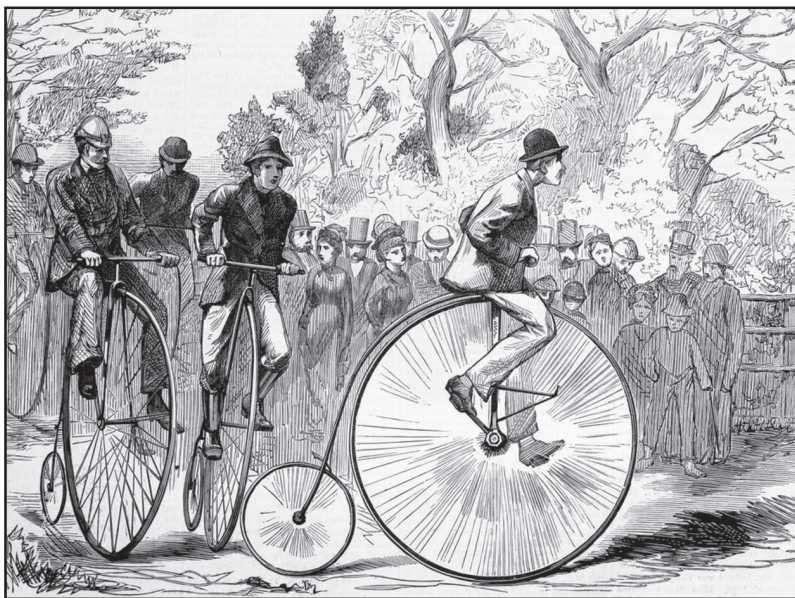


Illustration 9. High front wheel

1866 - The Cranked Two-Wheeled Velocipede

For decades, the growth of rail roads stole the show from early two-wheelers. That, and the fact that people were frightened of balancing on them. Around 1865, somebody in France dared to take both feet off the ground and onto cranks for pedalling the front wheel, proving that it was possible to balance on a bike and crank at the same time, and thus spawning a new boom. These added cranks on the front wheel formed a wholly new cycling concept and soon the machines were made of metal rather than timber. Who came up with the cranked front wheel idea is still fiercely debated but we know that a French cartwright, Pierre Lallement, emigrated to the United States and took out a patent in 1866.

Sarika was on the terrace of an old building. It looked like a place used by people belonging to Christian faith. The screen flashed, 'Notre Dame, Paris'. Sarika looked around and saw down below at a distance, a lovely river flowing by. It was the river Seine.

Looking down, she saw a wide road with lots of cyclists. She made a mental note that although the roads were full, there was no traffic jam. The road was dusty - yes, but it was all joyous and carnival like. There were both men and women cyclists but their cycles were strange. The cycles had a big front wheel and its hub had pedals. The wheel had a seat on top of it and its back wheel was small. The cyclists as well as the bystanders at the carnival seemed to be laughing and having a good time. They were all dressed in colourful clothes.



Illustration 10. Man falling from a bicycle

Suddenly, a man on a cycle leaped up and fell down on his face. His cycle apparently had hit a stone on the road. Everyone laughed although some people did go to help the man.

England

Sarika laughed so much that she forgot the time and so it came as a bit of a shock when it became dark again. Sarika wondered as to what was next. Soon the mystery was solved as she saw the Nelson's Column, fountains and lions at the Trafalgar Square below. She was in London, on the roof of the National Portrait Gallery and below at the square, hundreds of cyclists were milling about. The cycles looked no different from the cycle she and her school mates used in Bangalore.

1885 – The Rover Safety Bicycle

Although the high-wheeler was efficient and fast, it was difficult to ride safely. Bicycle makers and inventors began to develop lower, safer bicycles, with geared-up rear-wheel drive, eliminating the need to sit atop a huge front wheel. James Starley was one of the most renowned English inventor, manufacturer of bicycles at the time and is considered as the father of the bicycle industry. John Kemp Starley, nephew of James Starley, created the first rear-driving bicycle to attain widespread popular favour. The 1885 Rover Safety had most of the hallmarks of what was to become the standard bicycle. It featured direct steering of the front wheel, wheels of similar size, a diamond-shaped frame and a chain drive to the rear wheel.



Illustration 11. Safety Bicycle

America

Sarika was getting used to arriving at a new place at different times in history. So she just looked at the panel and saw the Chronometer reading June 27, 1894, 11:00 a. m. and the panel read 'Massachusetts State House on Beacon Hills, Boston'. This time she was perched on a big tree with a view of the grounds below. There was a milling crowd on the ground. In its middle, there was a woman who appeared to be in her early twenties, wearing a long dress with a high collar. She seemed



Illustration 12. Ann Londonderry

1894 - Boston, America *Annie Cohen Kopchovsky (1870–1947), known as Annie Londonderry, was the first woman to bicycle around the world. An American mother of three she cycled around the world in fifteen months, setting off from Boston in 1894 carrying only a change of clothes and a pearl-handled revolver. Not only did she make full use of a woman's new found freedom of movement but she also did change a lot of public perception by becoming a bit of a celebrity. Annie Kopchovsky was a highly unlikely choice for the completion of this wager. Starting with her name which identified her as a Jew. Secondly, she lacked the experience, never having ridden a bicycle until a few days before her trip and that she had a slight built of only 5 foot 3 inches, and weighed about 100 pounds. In addition, she was a married woman and a mother of three children, ages five, three and two.*

ready to set off on a cycle journey while a group of women and children were cheering on. Slightly away, a group of men were jeering and laughing. The woman carried a placard which said, 'Annie Londonderry on a world tour on cycle in 15 months.'

Back to Bangalore

With a slight vibration, there was light again. Sarika looked at the control panel. It said 'Bangalore' and the time was '15:31'. The speedometer read 'zero'. Sarika cautiously tried to open the hood. It moved easily and she came out. She carefully closed it without making any noise and crept back into the house. The drawing

room was still empty so she went back to her sofa and curled up as if nothing had happened. Soon she was fast asleep. She had strange dreams...



The Super Duper Factory

It looked like Amma's office in her factory. There was a new board on her glass door:



Amma was sitting inside surrounded by computers and machine drawings on her screen. There was a drawing of Kiki Aunty's Super Duper on the computer. Amma was rapidly doing some calculations on a sheet of paper with all kinds of Greek letters and Kiki Aunty was looking over it. When she saw Sarika peeping, her face lit up and she said to Sarika, 'Let us go out on the shop floor.'

It was a small workshop - more like Sadiq's shop. At the centre, there was a table and there was Kiki's Super Duper and it was actually Sadiq working on it. Sarika was very happy to see him and he grinned at her. Kiki explained that Sharada's factory had bought rights from her to manufacture the Super Duper. 'Of

course there won't be a TTC in it.' When Sarika looked up questioningly, Kiki replied, "It stands for 'Time Travel Chronometer'. I will explain it later." Sarika smiled secretly. There were several Super Dupers arranged in a corner. The shelves were full of parts. Kiki took Sarika on another table and said, 'Let us start putting together one more piece' and she began to ask Sarika to bring parts one by one. Half way through, Kiki looked up at the clock and said, 'Oh! They wind up at 6 in the evening. At home, I could work as long as I liked.' and she started packing up. Soon there was an electronic clock sounding the hour just like a grandfather's clock ... tong.. tong..



The grandfather's clock was going 'tong ... tong ...' and some one was shaking her. Sarika realised it was her mother so she opened her eyes slowly. The tube light was switched on and the clock said 6:00. Sharada told her that it is time to go back home. 'But, where is Kiki aunty?' Sarika questioned. 'Oh she went back at 4:30 after we had tea. She did not want to wake you up, but she said her byes to you and promised to let you ride on her cycle.' Sharada said. Sarika smiled and thought to herself that no one would know about her secret trip.



Appendix: 1

The Birth of the Bicycle

The birth of the bicycle is associated with the biggest catastrophic event in the recent history of mankind. ‘The seismic event that began on 5 April 1815, on Mount Tambora, 300 kilometres to the east of Bali, was the greatest volcanic eruption in recorded history. Over the next few weeks, the volcano would send 100 cubic kilometres of debris shooting in the air. The plume of dust - 1.7 million tons of it – soon spread around the globe, obscuring the sun and causing temperatures to plunge by three to six degrees. There followed several years of severe climate disruption. Crops failed around the world and there were famines in Europe and China. In many parts of the world, 1816 would come to be known as the ‘Year without a summer.’ This famine starved the horses in Europe and paved the way for the birth of the bicycle in 1817.



Illustration 13. The Mount Tambora Volcanic Eruption

Appendix: 2

Time Line in the History of Bicycle

1. 1817 - The Draisine

Karl Drais' counterintuitive discovery that a vehicle with two aligned wheels could easily be balanced by tiny actions was the technical breakthrough from which all bicycle development stems.

2. 1866 - The Cranked Two-wheeled Velocipede

Around 1865, somebody in France dared to take both feet off the ground and onto cranks for pedalling the front wheel, proving that it was possible to balance on a bike and crank at the same time. A French cart wright Pierre Lallement emigrated to the United States and took out a patent in 1866.

3. 1869 - The Tension-Spoked Wheel

When wooden spokes were replaced by steel tension wires - as patented by an Alsatian in Paris named Eugène Meyer—it was a breakthrough moment. Huge front wheels could now be built for higher speed, limited only by the in seam of the rider.

4. 1874 - Tangent Spoking

James Straley is regarded as the father of the British cycle industry. The tangential spoke arrangement of Starley's patent, preventing the spokes from being broken by the rotational thrust of the pedal crank. Tangent spoking became the world standard.

5. 1880 - Bush-roller Chain

In 1880, Swiss-born Hans Renold invented the bush-roller chain at Manchester, in which pairs of inner and outer links were riveted together. The rider enjoyed minimal resistance to pedalling and no longer had to fear the breaking of his chain.

6. 1885 - The Rover Safety Bicycle

John Kemp Starley, a nephew of James Starley, created the first rear-driving bicycle to attain widespread popular favour. The 1885 Rover Safety had most of the hallmarks of what was to become the standard bicycle. It featured direct steering of the front wheel, wheels of similar size, a diamond-shaped frame and chain drive to the rear wheel.

7. 1886 - Pneumatic Tires

A Scotsman named, John Boyd Dunlop, invented the idea in 1886 and its efficiency for an easier and less bumpy ride was demonstrated in winning races from 1889 onwards. In the early 1890s, bicycle makers rapidly adopted pneumatic tires and they were soon standard equipment.

8. 1887 - Tube Rolling

Max and Reinhard Mannesmann, heirs of a small German rolling mill, invented the process that could convert a solid steel bar into a seamless tube within seconds. Their invention came at the right time to satisfy the lightweight “tube hunger” of the bicycle industry. For many decades, the vast majority of quality bicycles have been built of lightweight seamless steel tubing.

9. 1911 - The Dynamo

In 1886, Richard Weber, a mechanic in a Leipzig shop that sold camera holders for bicycles, patented his idea of a small generator driven by the bicycle wheel to illuminate an electric bulb. The idea became commercially viable when the jolt-resistant tungsten filament appeared in 1911. Since then bicycle dynamos have been produced in vast quantities.

***Source: A Beautifully Illustrated History of Nearly Two Centuries of
Bicycle Design and Technology***

By Tony Hadland and Hans -Erhard Lessing





About the Author

T. Vijayendra (1943-) was born in Mysore, grew in Indore and went to IIT Kharagpur to get a B. Tech. in Electronics (1966). After a year's stint at the Saha Institute of Nuclear Physics, Kolkata, he got drawn into the whirlwind times of the late 60s. Since then, he has always been some kind of political-social activist. His brief for himself is the education of Left wing cadres and so he almost exclusively publishes in the Left wing journal *Frontier*, published from Kolkata. For the last nine years, he has been active in the field of 'Peak Oil' and is a founder member of Peak Oil India and Ecologise. Since 2015 he has been involved in Ecologise Camps and in 2016 he initiated Ecologise Hyderabad. He divides his time between an organic farm at the foothills of Western Ghats, watching birds, writing fiction and Hyderabad. He has published a book dealing with resource depletions, three books of essays, two collections of short stories, a novella and an autobiography. Vijayendra has been a 'dedicated' cyclist all his life, meaning, he neither took a driving licence nor did he ever drive a fossil fuel based vehicle.

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Sarika. Photo: Sharada Shirolkar

The Bicycle was invented in 1817 by a German, Baron Karl von Drais, a civil servant to the Grand Duke of Baden in Germany. On his first reported ride from Mannheim on June 12, 1817, he covered 13 km in less than an hour. The book is part of the celebration of 2017 as the bicentenary year of the bicycle. The story tells the history of the bicycle, through a story of a girl who rides a time travel bicycle and visits the historical events.